JFSP 2004 Principal Investigator Workshop

Project Title: Evaluating the effects of prescribed fire and fuels treatment on water quality and aquatic habitat
Project Location: Blue Mountains, NE Oregon & SE Washington; Umatilla NF
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Description of Project: This study is designed to examine the effects of prescribed fire and mechanical fuel treatments on surface erosion, stream sedimentation, channel morphology, and other water quality parameters. Intensive study sites are located in the Skookum Experimental Watersheds and a more extensive array of hillslope erosion plots are located in 3 additional fuel treatment projects in the Blue Mountains. The Skookum watersheds have been gauged and baseline data are available for stream discharge and sediment yield. We are measuring hillslope erosion, surface-sediment transport, and sediment delivery to streams on control and treatment sites within the Skookum Experimental Watersheds for one year prior to treatment, and for two years post treatment. The combination of gauged watersheds and long-term records of discharge, suspended sediment and bedload makes it possible to examine treatment effects using watershed-scale sediment budgets. Measurements from the extensive hillslope erosion plots are limited to rates of hillslope erosion and hillslope-sediment transport. The extensive plots are located on both control and treatment sites, but do not include any pre-treatment data. Data from both the watershed-scale study and the extensive plots will be used to refine erosion and sediment delivery models used in planning and assessing management activities.

Status Report: We completed the second year of this three-year study and report the following progress. We completed sampling of existing hillslope erosion plots at Skookum and Red Fir (72 plots). Stream channel reference reaches on the control and treatment watersheds at Skookum were resurveyed. We installed 2 new hillslope erosion sites: at Lick Creek on Pomeroy Ranger District (also part of a JFSP, Zamora and Martin, "The Lick Creek Demonstration – Forest Renewal though Partial Harvest and Fire"), and at the Lane Creek prescribed burn, on the North Fork John Day District. We completed fuel load measurements on study sites at Lick Creek and Lane Creek and we also installed new rain gages at these sites. We completed laboratory processing of more than 50% of the collected erosion plot samples and are working through the remaining samples. We have compiled historical data from the Skookum Watershed and have it in an electronic database which will be archived with the PNW Station Databank at the Corvallis Forestry Sciences Lab. Finally, we completed major maintenance on the stream gauges at the Skookum Experimental Watersheds.

We presented a poster paper at the November 2002 Watershed Management Symposium meeting in Skamania, WA, and an oral presentation was made in May 2003 at the FS Region 6 annual Aquatics Program Manager's Meeting, in Eugene, OR.

Issues/Concerns affecting the project: The project is progressing on time and within budget. Our ongoing concern remains the uncertainty that specific prescribed fires will be implemented within project areas, as scheduled. One study site (Red Fir) was burned in 2002 and we are entering our 2nd year of post-treatment monitoring. Weather delays prevented the 2003 burns scheduled for the remaining 2 extensive sites (Lick Ck. & Lane Ck.), but these are scheduled for treatment in 2004. Forest and District staff met in November 2003 to discuss the future of the Skookum Experimental Watershed Study. The District Ranger, Andrei Rykoff, decided the project plan needs to be updated before the watersheds can be treated. Consequently, we no longer expect the experimental watersheds to be treated during the course of this study. The PIs are working to secure additional funding to continue the monitoring measurements and also working with Forest and District staff to support efforts towards planning and implementing the fuels reduction project.